not, steps **310**, **314**, **316**, **318**, **320**, **322** and **324** are repeated. Once two or more fiducial coordinates are ascertained, a coordinate system is fitted thereto, at step **328**. This coordinate system may be, for example, a line extending between two fiducial coordinates. A reference point lying along the line is determined, which in this example, could be the center of the line extending between two fiducial coordinates, at step **330**. The orientation of the line is analyzed to determine whether it is acceptable at step **332** and, if necessary, servo-mechanism **38** is activated to rotate stage **28** to orientate the line as desired at step **334**. Otherwise, imaging is commenced at step **336**, because workpiece **22** is aligned properly with tool **24**. In this fashion, the alignment between workpiece **22** and tool **24** may be determined and controlled, thereby facilitating proper registration of a pattern image on workpiece **22**.

[**0047**] It should be understood that other arrangements that may be employed that would fall within the scope of the present invention. For example, the present invention may be employed along with top-down-dark-field illumination or top-down-bright-field illumination or both. Additionally, an x-ray source may be employed in place of the illumination source. In this arrangement, the detector would be capable of sensing x-rays. Also, the fiducial registration may be accomplished by other method than circumference calculation. For example, a centroid of the fiducial may be determined based on the area of fiducial or pattern recognition. Therefore, the scope of the invention should not be based upon the foregoing description. Rather, the scope of the invention should be determined based upon the claims recited herein, including the full scope of equivalents thereof.

What is claimed is:

1. A method for determining an alignment of a workpiece with respect to a tool, said workpiece of the type having a fiducial, said method comprising:

passing electromagnetic energy through said fiducial, with electromagnetic energy emerging from said fiducial defining an emergent flux;

ascertaining a circumference said emergent flux; and

determining said alignment as a function of said circumference.

2. The method as recited in claim 1 wherein ascertaining said circumference further includes sensing, with a detector, an irradiance associated with said circumference, and determining said alignment further includes determining said alignment as a function of said irradiance.

3. The method as recited in claim 1 wherein said electromagnetic radiation passing through said fiducial produces artifacts having a radiant flux that includes information associated with said artifacts, with a first component of said emergent flux comprising of a sub-portion of said radiant flux and the remaining components of said emergent flux having information corresponding to said fiducial and further including attenuating information in said emergent flux associated with said artifacts.

4. The method as recited in claim 1 wherein said electromagnetic radiation passing through said fiducial produces artifacts having a radiant flux that includes information associated with said artifacts, with a first component of said emergent flux comprising of a sub-portion of said radiant flux and the remaining components of said emergent flux having information corresponding to said fiducial, with ascertaining said circumference further including attenuating information associated with said artifacts by sensing, with a detector, an irradiance associated with said emergent flux that is substantially uniform over an area of said detector.

5. The method as recited in claim 1 wherein said electromagnetic radiation passing through said fiducial produces artifacts having a radiant flux associated therewith, with a first component of said emergent flux comprising of a sub-portion of said radiant flux, wherein ascertaining said circumference includes sensing, with a detector having a detection area associated therewith, a first irradiance associated with said first component and a second irradiance associated with the remaining components of said emergent flux, said first and second irradiance defining a combined irradiance that is substantially uniform over said detection area.

6. The method as recited in claim 5 wherein determining said alignment further includes determining said alignment as a function of said combined irradiance.

7. The method as recited in claim 1 wherein said fiducial extends between opposed sides of said workpiece and has a cross-sectional area associated therewith which defines an aperture stop, with passing electromagnetic radiation further including defining said circumference with said aperture stop.

8. The method as recited in claim 1 wherein said electromagnetic radiation is in the range of 410 to 620 nm.

9. The method as recited in claim 1 wherein passing electromagnetic radiation further includes generating said electromagnetic radiation from an electroluminescent source.

10. A system for determining an alignment of a workpiece with respect to a tool, said workpiece of the type having a fiducial, said system comprising:

means for passing electromagnetic energy through said fiducial, with electromagnetic energy emerging from said fiducial defining an emergent flux;

means for ascertaining a circumference of said emergent flux; and

means for determining said position as a function of said circumference.

11. A system for determining an alignment of a workpiece with respect to a tool, said workpiece of the type having a fiducial, said system comprising:

a displacement mechanism including a platen;

an illumination subsystem coupled to said platen, said illumination system including an illumination source disposed to propagate electromagnetic radiation through said fiducial, with electromagnetic energy emerging from said fiducial defining an emergent flux; and

a detection subsystem in optical communication with said workpiece to detect said emergent flux.

12. The system as recited in claim 11 wherein said illumination source includes a plurality of strips of electromagnetic material extending along said platen, with a first subset of said plurality of strips extending along a first direction and a second subset of said plurality of strips extending along a second direction, transverse to said first direction.